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PATENT COOPERATION TREATY

PCT/JP2003/004125



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference M720-PCT	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/JP2003/004125	International filing date (day/month/year) 31 March 2003 (31.03.2003)	Priority date (day/month/year) 29 March 2002 (29.03.2002)
International Patent Classification (IPC) or national classification and IPC H01L 21/316		
Applicant TOKYO ELECTRON LIMITED		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet. <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of _____ sheets.
3. This report contains indications relating to the following items: I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 06 August 2003 (06.08.2003)	Date of completion of this report 02 March 2004 (02.03.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

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International application No.
PCT/JP03/04125

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2, 7	YES
	Claims	1, 3-6	NO
Inventive step (IS)	Claims		YES
	Claims	1-7	NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims		NO

2. Citations and explanations

Document 1: US, 2002-0014666, A1 (Tadahiro Ohmi), 7 February, 2002 (07.02.02)

Document 2: JP, 2000-294550, A (Tokyo Electron Ltd.), 20 October, 2000 (20.10.00)

Document 3: JP, 2001-111000, A (Samsung Electronics Co., Ltd.), 20 April, 2001 (20.04.01)

The subject matters of claims 1 and 3-6 do not appear to be novel in view of document 1 or 2 cited in the ISR.

Document 1 cited in the ISR describes a method for forming a semiconductor device wherein an oxidized-silicon film and then a nitrogenized-silicon film having a high dielectric constant are formed on the silicon wafer by means of a plasma processing apparatus equipped with a radial line slot antenna.

Document 2 cited in the ISR describes a semiconductor manufacturing method containing (1) a process wherein a substrate to be treated that has silicon as the principal component is irradiated with microwaves via a planar antenna member in the atmosphere of the treating gas to form a plasma containing oxygen, and that plasma is used to directly oxidize the surface of the said substrate to be processed to form an oxidized-silicon film on that surface, and (2) a process wherein a nitrogenized-silicon film is formed on the said oxidized-silicon film.

The subject matters of claims 2 and 7 do not appear to involve an inventive step in view of documents 1-3 cited in the ISR. Document 3 cited in the ISR discloses a semiconductor element wherein a stable layer of oxidized-silicon film to make the surface of a silicon substrate hydrophilic is formed on the substrate, and a gate-insulation film composed of an aluminum oxide, HfO_2 , ZrO_2 , etc., is formed on the said stable layer.